

Applicant: Antii Poikolainen et al.  
PCT App. No.: PCT/FI2003/000622

### **Claim Listing**

1-10. (cancelled)

11. (new) A forming section of a paper or board machine, comprising:

a first forming wire forming a first wire loop and mounted to travel in a defined

running direction, the first wire loop having a web receiving surface;

a second forming wire forming a second wire loop which forms a twin-wire zone with the first forming wire, and which is mounted to travel in the defined running direction;

a suction roll positioned within the first wire loop, the suction roll having a cylindrical suction surface engaged with the first forming wire, and having a suction zone;

a suction box having a curved surface positioned within the second wire loop and positioned with the curved surface in opposed relationship with the suction roll; and

wherein the suction zone of the suction roll has a portion which extends in the running direction beyond the suction box so that a web passing between the suction roll and the suction box is guided, due to the effect of the suction zone of the suction roll, forwards on the web receiving surface of the first wire loop.

12. (new) The forming section of claim 11, wherein the second wire loop is separated from the first forming wire while opposite the suction roll.

13. (new) The forming section of claim 11, wherein the suction roll suction zone is divided into a first suction zone opposite the suction box, and a second suction zone which forms the portion which extends in the running direction beyond the suction box so that a web passing between the suction roll and the suction box is guided, due to the effect of the second suction zone of the suction roll, forward on the web receiving surface of the first wire loop.

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14. (new) The forming section of claim 11, further comprising;  
a third wire or felt, forming a third loop;  
a second suction roll within the third wire or felt;  
a second suction box having a curved surface positioned within the first wire loop and  
positioned with the curved surface in opposed relationship with the second  
suction roll; and  
wherein the third suction roll is arranged to pass a web from the web receiving surface  
of the first wire loop to the third wire or felt.
15. (new) The forming section of claim 14, wherein the second suction box is  
arranged to prevent rewetting of a web as the web passes from the first wire to the third wire  
or felt.
16. (new) The forming section of claim 11, wherein the first forming wire is  
positioned beneath the second forming wire in the twin-wire zone.

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17. (new) A method for forming a paper web in a forming section of a paper or board machine, comprising the steps of:

supplying a stock suspension from a headbox to a twin wire former having a first forming wire forming a first wire loop and traveling in a running direction, the first wire loop having a web receiving surface, and the twin wire former having a second forming wire forming a second wire loop which forms a twin-wire zone with the first forming wire and travels in the running direction; removing water from a web formed from the stock suspension through a first side with a suction roll positioned within the first wire loop, the suction roll having a suction zone engaged with the first forming wire, the water being removed by suction of the suction roll through the web receiving surface; removing water from the web through a second side opposite the suction roll with a suction box which conforms to a sector of the suction roll and forms a curved surface positioned within the second wire loop, the suction box positioned with the curved surface in opposed relationship with the suction roll; and guiding the web after the suction box by a portion of the suction zone which extends in the running direction beyond the suction box so that the web passes between the suction roll and the suction box and is guided, due to the effect of the suction zone of the suction roll, forwards on the web receiving surface of the first wire loop.

18. (new) The method of claim 17 further comprising the step of regulating a dewatering ratio between the suction roll and the suction box to control the two-sidedness of the paper web.

19. (new) The method of claim 17 further comprising the step of separating the second wire from the first forming wire while the second wire is opposite the suction roll.

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20. (new) The method of claim 17 wherein the suction roll suction zone is divided into a first suction zone opposite the suction box, and a second suction zone which forms the portion which extends in the running direction beyond the suction box, and wherein the step of guiding the web is performed with the second suction zone of the suction roll.

21. (new) The method of claim 17, further comprising the steps of:  
passing the web on to a third wire or felt forming a third loop with a second suction roll positioned within the third loop; and  
preventing rewetting of the web as the web passes from the first wire to the third wire or felt with a second suction box having a curved surface positioned within the first wire loop and positioned with the curved surface in opposed relationship with the second suction roll.

22. (new) The method of claim 17, further comprising the step of forming the twin-wire zone with the first forming wire positioned beneath the second forming wire.